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Recent Work

Title

Erratum to: Carbon budgets for 1.5 and 2 °C targets lowered by natural wetland and permafrost feedbacks (Nature Geoscience, (2018), 11, 8, (568-573), 10.1038/s41561-018-0174-9)

Permalink

<https://escholarship.org/uc/item/33v883nx>

Journal

Nature Geoscience, 11(11)

ISSN

1752-0894

Authors

Comyn-Platt, E
Hayman, G
Huntingford, C
et al.

Publication Date

2018-11-01

DOI

10.1038/s41561-018-0247-9

Peer reviewed

Author Correction: Carbon budgets for 1.5 and 2 °C targets lowered by natural wetland and permafrost feedbacks

Edward Comyn-Platt, Garry Hayman, Chris Huntingford, Sarah E. Chadburn, Eleanor J. Burke, Anna B. Harper, William J. Collins, Christopher P. Webber, Tom Powell, Peter M. Cox, Nicola Gedney, and Stephen Sitch

Correction to: *Nature Geoscience* <https://doi.org/10.1038/s41561-018-0174-9>, published online 9 July 2018.

In the version of this Article originally published, a parallelization coding problem, which meant that a subset of model grid cells were subjected to erroneous updating of atmospheric gas concentrations, resulted in incorrect calculation of atmospheric CO₂ for these grid cells, and therefore underestimation of the carbon uptake by land through vegetation growth and eventual increases to soil carbon stocks.

Having re-run the simulations using the corrected code, the authors found that the original estimates of the impact of the natural wetland methane feedback were overestimated. The permafrost and natural wetland methane feedback requires lower permissible emissions of 9–15% to achieve climate stabilization at 1.5 °C, compared with the original published estimate of 17–23%.

The Article text, Table 1 and Fig. 3 have been updated online to reflect the revised numerical estimates. The Supplementary Information file has also been amended, with Supplementary Figs 6, 7, 8 and 9 replaced with revised versions produced using the corrected model output. The original and corrected table, figures and supplementary figures are shown below. As the strength of feedbacks remain significant, still require inclusion in climate policy and are nonlinear with global warming, the overall conclusions of the Article remain unchanged.

Table 1 | The original and corrected emission budgets from the factorial experiment and the changes due to the introduction of the feedback processes

		Total anthropogenic fossil fuel CO ₂ emissions (GtC)		
		Standard	Methane feedback	Difference
(a) Original				
1.5 °C	Standard	265 (226-283)	226 (187-249)	39.6 (33.1-42.1)
	Permafrost feedback	254 (214-276)	214 (175-235)	40.1 (34.7-42.4)
	Difference	11.9 (11.6-12.2)	12.5 (11.9-14.0)	52.1 (46.6-54.2) 19.4% (16.7-22.9%)
1.5 °C overshoot	Standard	271 (227-288)	232 (185-254)	40.2 (33.6-42.8)
	Permafrost feedback	258 (214-276)	218 (172-240)	40.6 (36.3-43.1)
	Difference	12.5 (12.1-13.0)	13.0 (12.4-14.3)	53.5 (47.4-55.7) 19.5% (16.6-23.2%)
2 °C	Standard	527 (464-568)	504 (417-528)	47.4 (37.3-51.0)
	Permafrost feedback	514 (451-554)	467 (404-514)	47.8 (38.6-51.3)
	Difference	13.3 (12.8-13.8)	13.6 (13.0-15.0)	61.1 (51.4-64.6) 11.4% (9.5-13.0%)
(b) Corrected				
1.5 °C	Standard	265 (226-283)	246 (207-270)	19.6 (12.1-23.5)
	Permafrost feedback	254 (214-271)	235 (195-257)	19.9 (12.7-23.7)
	Difference	11.9 (11.6-12.2)	12.1 (11.8-12.8)	31.6 (24.8-35.6) 12.0% (9.3-14.5%)
1.5 °C overshoot	Standard	271 (227-288)	251 (204-275)	20.8 (12.9-25.2)
	Permafrost Feedback	258 (214-276)	238 (191-261)	21.0 (13.4-25.4)
	Difference	12.5 (12.1-13.0)	12.7 (12.3-13.4)	33.5 (25.8-37.8) 12.5% (9.4-15.1%)
2 °C	Standard	527 (464-568)	496 (431-546)	31.8 (19.3-37.9)
	Permafrost feedback	514 (451-554)	483 (418-531)	32.0 (19.9-38.0)
	Difference	13.3 (12.8-13.8)	13.5 (13.0-14.4)	44.4 (33.4-51.5) 8.5% (6.4-10.1%)

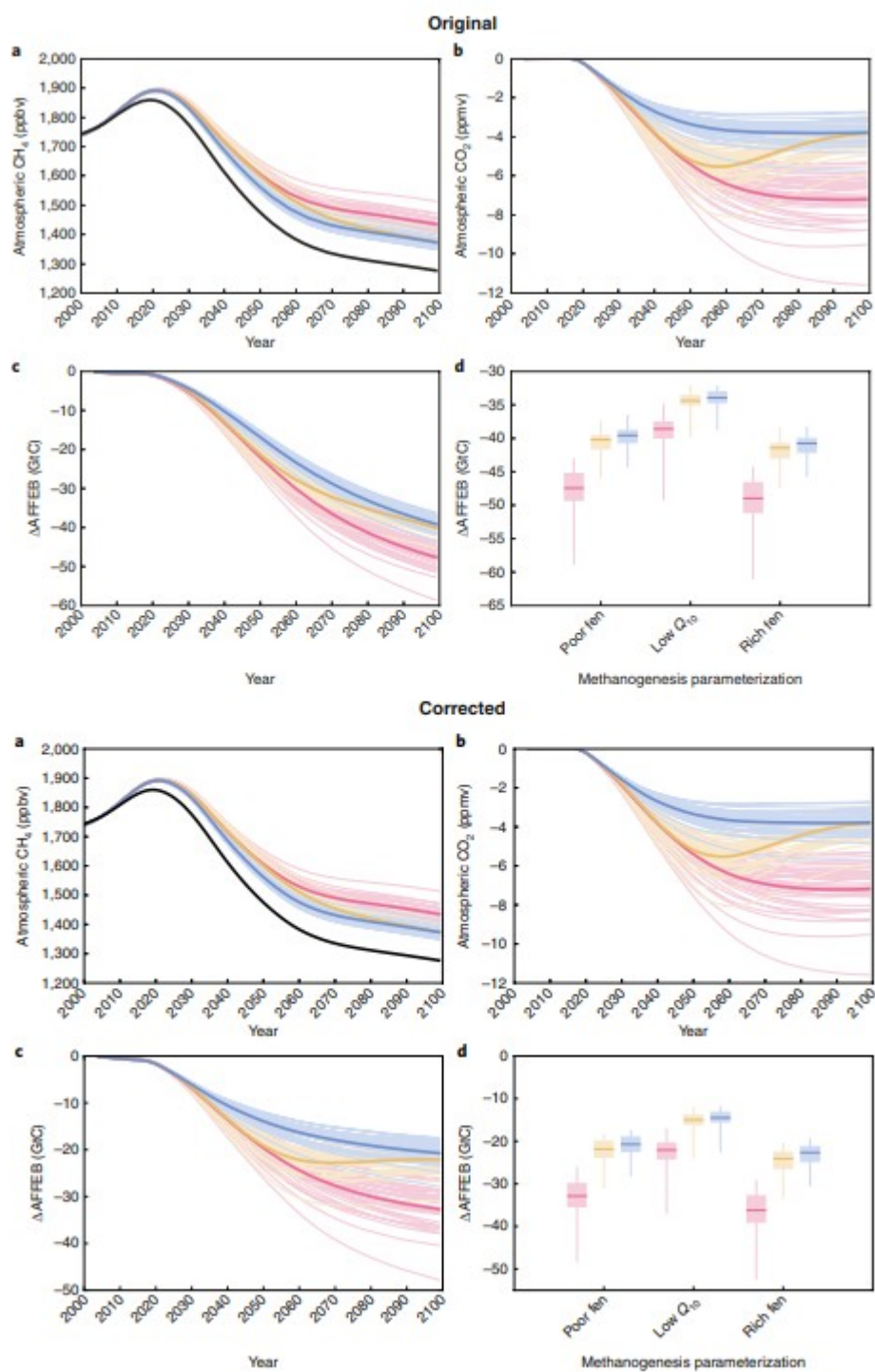
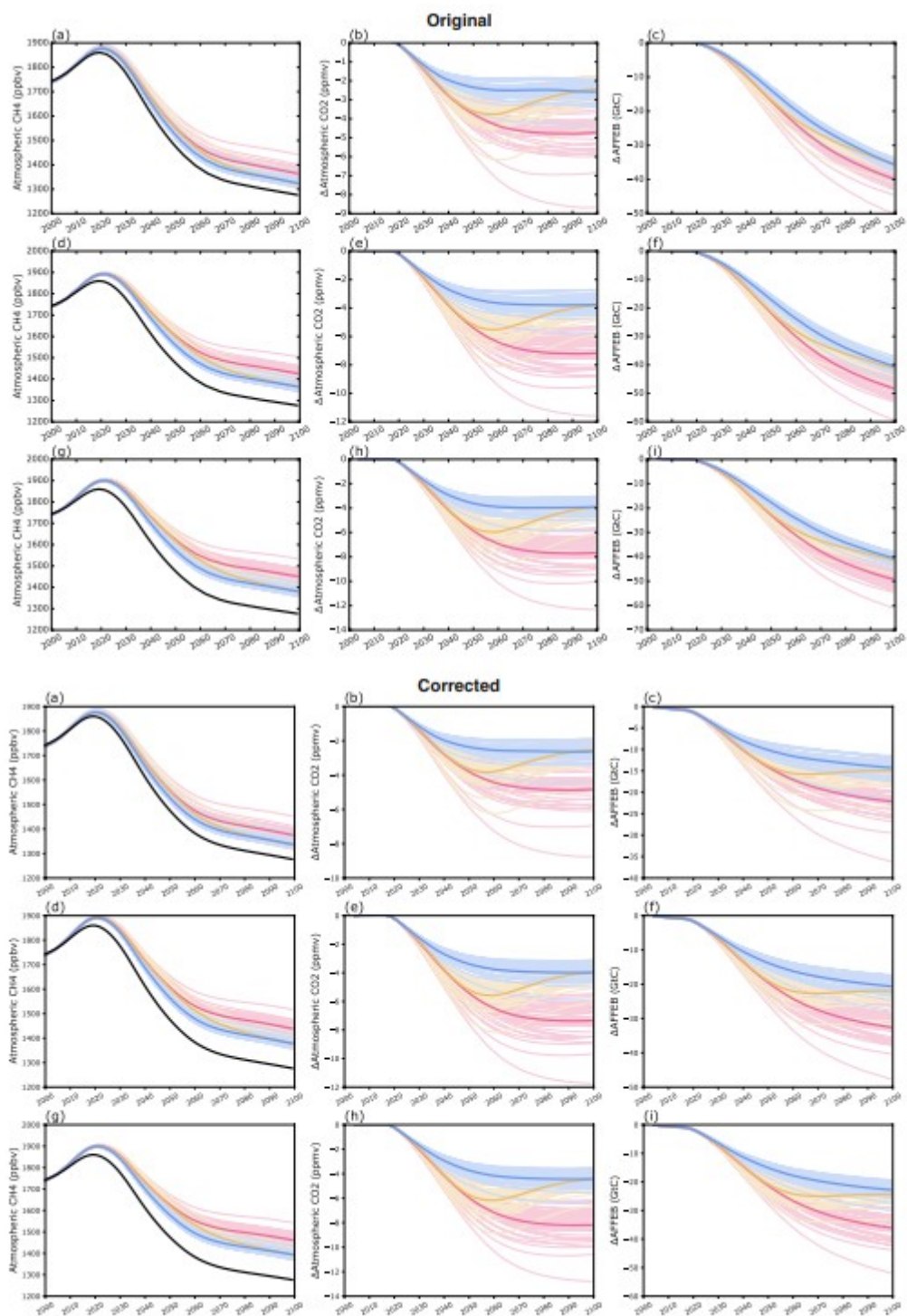
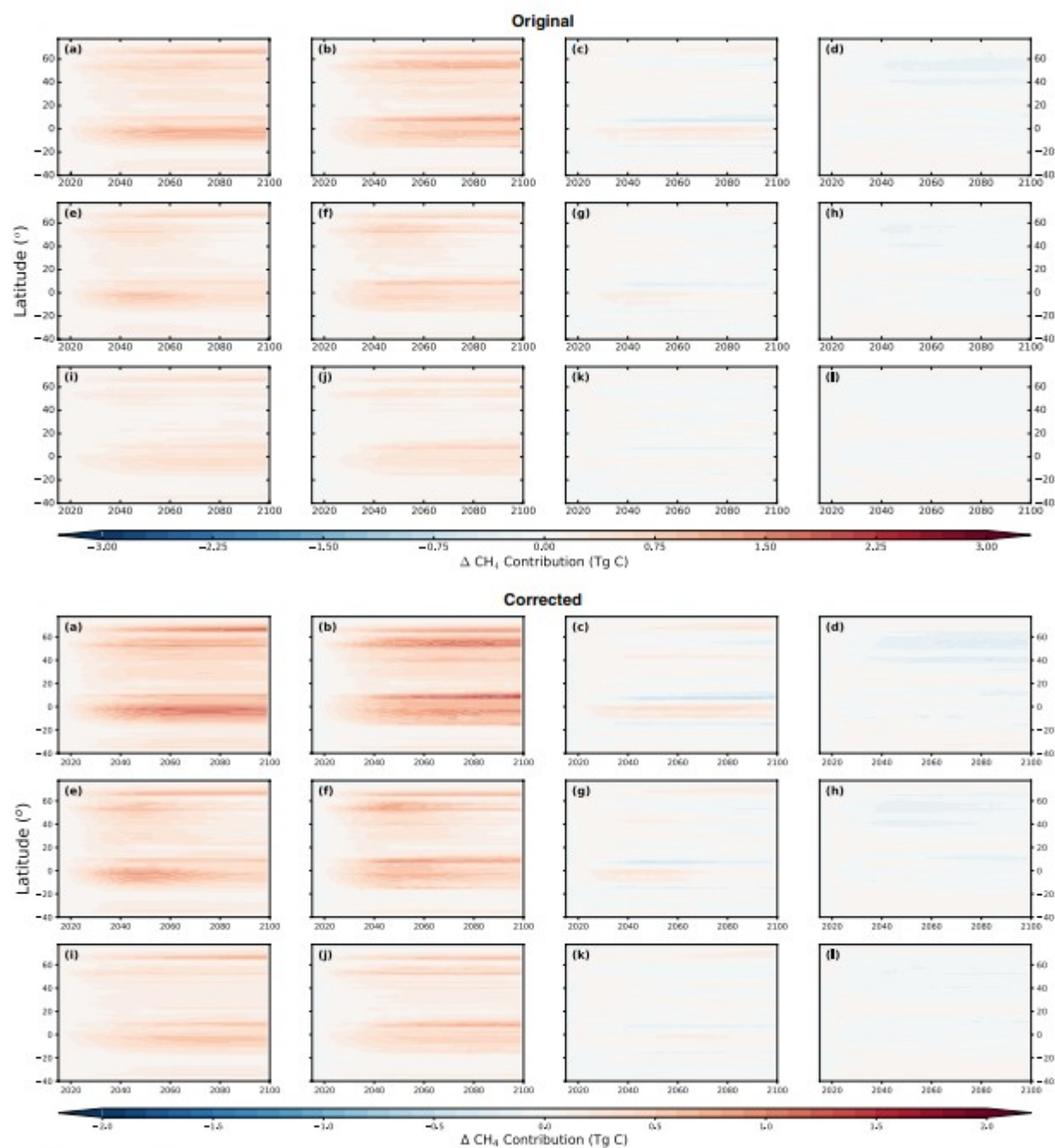


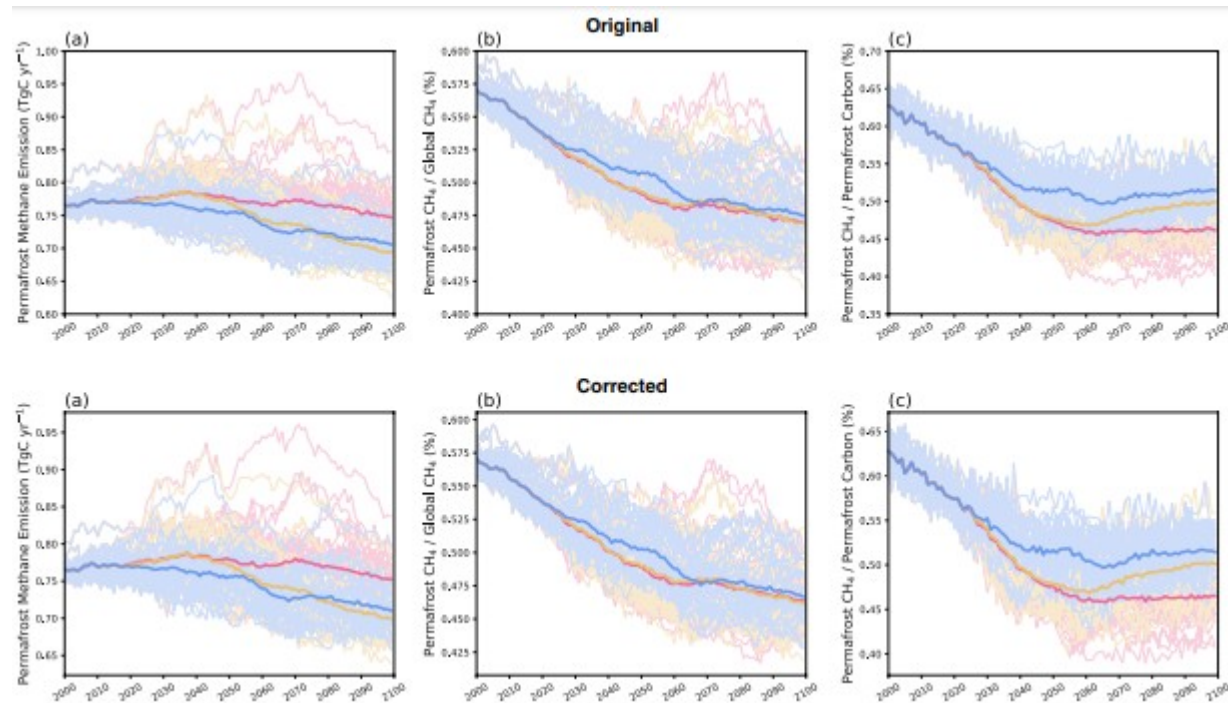
Fig. 3 | Original and Corrected.



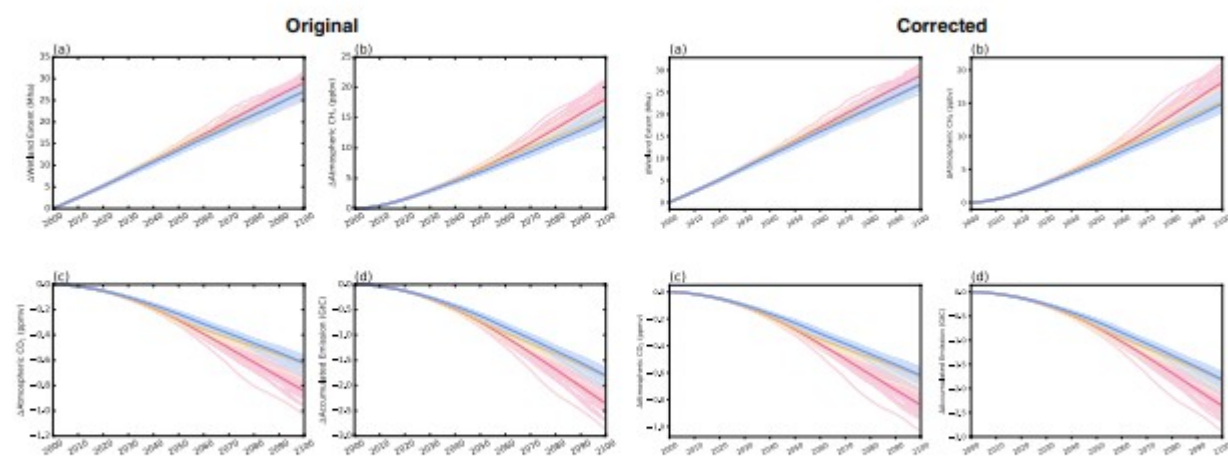
Supplementary Fig. 6 | Original and Corrected.



Supplementary Fig. 7 | Original and Corrected.



Supplementary Fig. 8 | Original and Corrected.



Supplementary Fig. 9 | Original and Corrected.